Annotated Bibliography

Information and Communications Technology: Professional Development

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Introduction

The following annotated bibliography addresses the needs of both educators and educational leaders. It highlights sources aimed at improving educators' use of information computer technology, both in traditional and virtual classrooms. Many of the sources listed enhance educational leaders' understanding of specific professional development initiatives. Others focus on theories and principles that underlie successful professional development programs. All sources provide leaders with a sound basis on which to make decisions about effective professional development.

Although each source is worthy of attention, readers may wish to focus on areas of personal interest. The following chart is designed to help readers as they peruse the annotated bibliography:

Audience	Recommended Readings from Annotated Bibliography
Educators / Educational leaders interested in professional development in online learning	• Ellis & Phelps (2000) • Gibbons & Wentworth (2001) • Hicks & Leask (2000) • Kessell & Gaynor (2002) • Levin, Levin & Chandler (2001, April) • Levin, Waddoups, Levin & Buell (2001, January) • Lim, C.P. (2002) • Lim, D.H. (2002) • McKenzie, Mims, Bennett & Waugh (2000, Winter) • Olina, Dwyer & Savenye (2000) • O'Reilly & Brown (2001) • Palloff & Pratt (2001) • Wright & Stammer (1996, Spring)
Technology leaders interested in professional development for technology integration- Program specific	• Burns (2002) • Caverly, Peterson & Mandeville (1997) • MacArthur & Pilato (1995) • Mouza (2003) • Mulqueen (2001) • Parr (1999) • Rakes, G. C. & Casey, H. B. (2002) • Sheumaker, Slate & Onwuegbuzie (2001)
Technology leaders interested in professional development for technology integration- General application	• Bybee (2001) • Bybee & Loucks-Horsley (2000) • Holland (2001) • McKenzie (2001) • Orrill (2001) • Strehle, Whatley, Kurz, & Hausfather (2001)

Burns, M. (2002). From black and white to color: Technology, professional development and changing practice. *THE Journal,* 29(11), 36-41. Retrieved September 3, 2002, from Expanded Academic ASAP database.

The author, an educational technologist with the South Central Regional Technology in Education Consortium, provides K-12 educators with professional development focused on creating technology-infused, learner-centered classrooms. The article is very practical in nature, providing a concrete example of a two-year professional development program that increased the level of classroom technology integration and created a more learner-centered environment. This model of professional development is worthy of emulation for three reasons: it emphasizes teacher comfort with technology instead of proficiency, it focuses on managing the classroom with limited technological resources, and it models the type of instruction with technology that it advocates. Within this framework, teachers become learners working with technology on a curriculum-related task. Teachers report that the approach has allowed them to learn technology and to incorporate it into their teaching. Most importantly, the paper provides adequate explanation of the professional development program, so that it can be implemented in other districts.

Bybee, R. W. (2001). Effective professional development for technology teachers. *The Technology Teacher,* 61(3), 26-29. Retrieved May 17, 2003, from WilsonWeb database.

In this concise essay, Bybee, the Executive Director of the Biological Sciences Curriculum Study, provides insight into the design and implementation of professional development for the teaching of and with technology. The recommendations and uncomplicated tone of the paper appeal to the novice technology professional developer and the more experienced designer in need of an uncomplicated technology professional development refresher. The aim of this paper is not to demonstrate or describe a program that has been successful, but rather to identify the many possibilities that exist in designing effective technology professional development. The underlying design principles for effective professional development have been adapted specifically for technology education, but are based on the design process of: Goals, Plan, Do, Reflect. To conclude, Bybee includes a functional list of alternative ways to design and deliver technology professional development.

Bybee, R. W., & Loucks-Horsley, S. (2000). Advancing technology education: The role of professional development. *The Technology Teacher,* 60(2), 31-34. Retrieved May 17, 2003, from WilsonWeb database.

This article is an overview of the role of professional development in technology integration with the target audiences being the K-12 teacher, administrator, or technology specialist interested in a concise and practical paper. Both authors are well known for their contributions to education and have worked extensively in the realm of technology professional development. This paper does not describe or evaluate one professional development program in particular, but relies upon the authors' vast experiences and the existing literature to illustrate four vital components to developing effective technology professional development. The authors accurately posit that learning about technology; learning to teach technology; self assessment and continuous improvement; and comprehensive, sustained professional development programs are requirements if success is to be achieved. They provide useful examples and explanations of these needs throughout

the paper and stress the relationship between technology standards and professional development. The paper presents an ideal framework for developing a technology staff development program.

Caverly, D., Peterson, C., & Mandeville, T. (1997). A generational model for professional development: Training teachers to use computers. *Educational Leadership,* 55(3), 56-59. Retrieved September 3, 2002, from Expanded Academic ASAP database.

The authors of this paper are all faculty in the Department of Curriculum and Instruction, Southwest Texas State University. In this paper, they describe a long-term technology professional development program established in one Texas school district based on a social constructivist model. The practical and explanatory nature of this paper clearly establishes the target audience as technology leaders in need of a long-term collaborative technology professional development program. The program was a generational model utilizing peer coaching or mentoring strategies to diffuse technology integration throughout the school district. One weakness of this article is its lack of formal program evaluation. Readers are told of the many benefits and positive outcomes of the program, but do not gain an understanding of its actual degree of success. The major value of this work is the collaborative and generational model's applicability to other professional development programs.

Ellis, A. & Phelps, R. (2000). Staff development for online delivery: A collaborative, team based action learning model. *Australian Journal of Educational Technology*, 16(1), 26-44. Retrieved May 25, 2003 from http://www.ascilite.org.au/ajet/ajet16/ellis.html

In their article, Ellis and Phelps, both of Southern Cross University in Australia, describe a professional development program focused on learning how to teach online. Called the SaWD Online Project, this initiative involved six academic staff, made use of action research, developed the staff's technical and online pedagogical skills, and encouraged faculty collaboration. The authors go into significant detail about their methods of data collection – interviews, documentation of sessions, personal reflections -- and their biweekly professional development workshops. These workshops focused on pedagogy, technology, administration, and team building. The authors' allusions to related theories, along with their final list of significant learnings, make this article a worthwhile read for any educational leader seeking to develop an online program.

Gibbons, H. S. & Wentworth, G. P. (2001). Andrological and pedagogical training differences for online instructors. *Online Journal of Distance Learning Administration,* 4(3). Retrieved May 24, 2003, from http://www.westga.edu/~distance/ojdla/fall43/gibbons_wentworth43.html

Gibbons and Wentworth, both Associate Professors at Brenau University, effectively compare the pedagogy practised in many "onground" courses to the andrology required in online courses. The authors suggest that andrology – a self-directed theory of learning – should be applied to online courses. Online learners, typically non-traditional, problem-centered, and driven by internal incentives, react favourably to constructivist environments.

This article provides teachers with solid information about typical online learners, effective online practices, and qualities desirable in online instructors. It goes beyond this, however, to suggest that online instructors learn how to facilitate dialogue in an online environment by first participating in an online course themselves. Numerous references to articles about technology and andrology make this article a fascinating read for those seeking professional reading on online learning.

Hicks, M. & Leask, B. (2000). Online teaching: Responding to and supporting change through staff development. *Flexible Learning for a Flexible Society: Refereed Proceedings of the ASET/HERDSA 2000 Joint International Conference.* Retrieved May 24, 2003, from http://www.aset.org.au/confs/aset-herdsa2000/procs/hicks.html

The emphasis of this article is on assisting staff to make research-based information computer technology decisions of benefit to students. The authors explain how UniSAnet, the online environment at the University of South Australia, assists instructors in making wise decisions about online learning. UniSAnet offers staff an easy-to-use web wizard, print resources, and technical help. Online course development is made easier by the user-friendly courseware and by the university's team approach. Staff knowledge of online issues is also enhanced through divisional workshops and teacher guides. At the end of the article, the authors present three applications of the university's professional development strategies and a first-rate appendix designed to help instructors make decisions about online education.

Holland, P. (2001). Professional development in technology: Catalyst for school reform. *Journal of Technology and Teacher Education*, 9(2), 245-267. Retrieved August 30, 2002, from WilsonWeb database.

In this research paper, Holland, professor in the department of Educational Leadership and Cultural Studies at the University of Houston, examines one middle school's technology integration efforts. A number of qualitative methods, such as observations and interviews, were vigorously employed in order to explore teachers' professional development needs. The article does not attempt to detail and critique an existing professional development program, but rather tries to suggest appropriate strategies for increased implementation specific to the teachers and school. Since the study is developed around three assumptions which concern developmental levels, best practices, and school reform, one can assume that the target audiences are fellow researchers and academically inclined technology leaders. Within this article, the teachers' professional development needs are identified, their current level of technology integration is described, and suggestions are made about applying research to practice. The strength of this article is that it goes beyond simply placing teachers on a technology integration continuum to actually explaining how the professional development needs of teachers can be met in relation to their level of technology integration. The final benefit of the article is its description of the importance of infrastructure on increased technology implementation.

Kessell, S. R. & Gaynor, I. W. (2002). Creating an authentic online learning environment: Teaching ICT to teachers. *Linking Learners: ACEC 2002 Conference Proceedings.* Retrieved May 24, 2003, from http://www.pa.ash.org.au/acec2002/uploads/documents/store/conferences/conf_8_kessell_gaynor.doc

This well-researched and comprehensive paper focuses on a professional development initiative undertaken by staff at Curtin University in Australia. In attempting to encourage a wide variety of K-12 teachers to integrate information computer technology into their classrooms, the authors created an online course exposing instructors to multimedia, computing, communication tools, Internet searches, and professional reading. The authors later altered the course to meet the needs of wider audiences, and the course now exists in several different forms, including an eighteen-month graduate certificate program and a one-semester short course. Participants in all of these courses build their level of confidence with information computer technology and learn how to apply information computer technology in their classrooms. Unfortunately, the authors' free modules are no longer available; however, linking to the address provided in the article is still beneficial.

Levin, S. R., Levin, J. A., & Chandler, M. (2001, April). Social and organizational factors in creating and maintaining effective online learning environments. *Annual Conference of the American Educational Research Association.* Retrieved May 31, 2003 from http://lrs.ed.uiuc.edu/jim-levin/LevinAERA.html

This article is a detailed and well-researched extension of Levin et al.'s work on effective online learning environments. In this paper, the authors allude to their five-element framework, and emphasize the importance of constructing rich environments for student-to-student interaction and coordinated learning. The authors claim that social and organizational factors are significant in engaging, satisfying, and retaining students; and they provide numerous suggestions about how to establish those factors in the online environment. Qualitative and quantitative studies, focused on their successful CTER Online program, form the basis of the authors' recommendations. Teachers hoping to develop online courses would certainly benefit from the authors' many suggestions about community building and their detailed learning summary.

Levin, S., Waddoups, G. L., Levin, J., & Buell, J. (2001, January). Highly interactive and effective online learning environments for teacher professional development. *International Journal of Educational Technology,* 2(2). Retrieved May 31, 2003 from http://www.ao.uiuc.edu/ijet/v2n2/slevin/index.html

The authors of this article, all faculty members at the University of Illinois and Brigham Young University, write about the success of their Master of Education program, CTER Online. After surveying over twenty students and conducting case studies on four students who participated in an effective course in this program, the authors conclude that five elements are necessary in achieving success in an online learning environment. These elements include challenging and relevant assignments, coordinated learning environments, adequate and timely feedback from instructors, rich environments for student-to-student interaction, and flexibility in teaching and learning. Not only do the authors provide useful details about each of these five areas, but they also make use of technology to allow their

students to elaborate on the areas. While content is clearly strong in this electronic article, perhaps the most fascinating part of this paper is its integration of video with text.

Lim, C. P. (2002). Online learning in schools: Some lessons from pole-vaulting. *International Journal of Educational Technology,* 3(1). Retrieved May 25, 2003 from http://www.ao.uiuc.edu/ijet/v3n1/c-lim/index.html

Lim provides readers with good food for thought about online learning in this article. The author cleverly uses the metaphor of pole-vaulting to challenge readers to undergo a paradigm shift in order to integrate online learning effectively. According to Lim, educational leaders must implement a strategic plan to make lifelong learning the cultural norm in their buildings. Teachers must engage students in relevant problem-solving activities and draw on their students' experiences to make learning meaningful. Little is said in this article of the students' responsibilities, and this lack of attention to the "athlete" weakens Lim's metaphor. Also problematic is Lim's unsubstantiated claim to have drawn on examples from Singapore schools. Despite these difficulties, Lim's constructivist perspective is refreshing and worthy of educators' consideration.

Lim, D. H. (2002). Perceived differences between classroom and distance education: Seeking instructional strategies for learning applications. *International Journal of Educational Technology*, 3(1). Retrieved May 25, 2003 from http://www.ao.uiuc.edu/ijet/v3n1/d-lim/index.html

Any educator questioning the effectiveness of online learning would find this article enlightening. Supported by much research, the author contends that there is no significant difference in the level of learning between distance education and classroom-based courses. Lim's claims are verified not only by other researchers' findings, but also by a study involving nineteen students in a human resource development course. The author concludes that mode of course delivery does not affect student learning as much as instructional design does. Although Lim's article is thoroughly researched, its findings may not be completely generalizable. Since the students involved in Lim's study were able to choose their preferred method of course delivery, it is not known whether students forced to take a course via distance delivery would have such a positive view of online learning.

MacArthur, C. A., & Pilato, V. (1995). Mentoring: An approach to technology education for teachers. *Journal of Research on Computing in Education,* 28(1), 46-62. Retrieved May 15, 2003, from Academic Search Premier database.

This relevant article explains the structure and effectiveness of a teacher mentoring program, a strategy often cited as successful in technology professional development. Where other papers generally state that mentoring is an effective tool, this paper describes an actual technology mentoring program. This article's detail would interest both researchers and technology leaders interested in the implementation of such a program. The paper details the framework of the program, which included a mentoring course, protégé workshops, and response logs. A summative program evaluation, which utilized a number of triangulated measures to enhance trustworthiness, was also conducted. Overall, the findings were extremely positive with regards to the program's effectiveness. This

research further supports the belief that a technology mentorship program is an effective method to provide long-term and cost-effective technology professional development.

McKenzie, B. K., Mims, N., Bennett, E. K., & Waugh, M. (2000, Winter). Needs, concerns, and practices of online instructors. *Online Journal of Distance Learning Administration,* 3(3). Retrieved May 25, 2003 from http://www.westga.edu/~distance/ojdla/fall33/mckenzie33.html

The authors of this article are academics who conducted a survey of university staff who were teaching online courses. The data collected from this survey indicate why instructors chose to teach online, how much time they devote to teaching online, and what they need in order to feel more comfortable teaching online. The authors conclude that many faculty prefer a hybrid model of instruction, that many are interested in involving students with technology, that most feel that online instruction requires more time, and that more professional support and instruction are required. This article targets educational leaders wishing to know about effective staff incentives and preferred professional development. However, teachers considering entering the online arena might also benefit from the faculty's comments about the time required for effective online instruction.

McKenzie, J. (2001). How teachers learn technology best. *From Now On,* 10(6). Retrieved May 15, 2003, from http://fno.org/mar01/howlearn.html

The author, Editor of From Now On, is an extremely trusted source who has vast experience in promoting teacher professional development as it relates to technology integration. The essay is a practical piece, not overly academic, aimed at guiding technology leaders in their design and implementation of technology professional development. The first part of the article describes the weaknesses and limitations of traditional training models, focusing particularly on out-of-context software training. The author then asserts that for professional development to be a success, it needs to be based on adult learning principles, be focused on the curriculum, and teach technology skills in combination with constructivist learning principles. The most practical section of the essay provides a selection of professional development strategies that, if implemented, can enhance technology integration. These strategies include study groups, coaches, mentors, and curriculum development teams. Most importantly, McKenzie stresses that effective professional development needs to be a combination of the aforementioned strategies. Overall, the essay offers a great deal to consider when planning to implement technology with a specific emphasis on what kinds of professional development work.

Mouza, C. (2003). Learning to teach with new technology: Implications for professional development. *Journal of Research on Technology in Education*, 35(2), 272-289. Retrieved May 15, 2003, from Academic Search Premier database.

Mouza is a professor in the Department of Communications, Computing and Technology in Education at Columbia University. This article investigates a professional development program aimed at increasing the level of technology integration for K-12 teachers. It is intended for any information computer technology leader interested in a set of guidelines to aid the design of technology professional development. The research provides insight into

the factors influencing teacher technology use and provides suggestions for technology professional development that can be applied to other programs. A triangulated case study methodology of three teachers was employed in order to gain an in-depth understanding of the constructs involved in effective technology professional development. The authors conclude that technology professional development should involve teachers in a variety of activities, such as modelling, discussions, brainstorming of ideas, hands-on practice, and just-in-time support. Additionally, the results indicated that technology integration is a long-term process that requires a well-planned, ongoing professional development program designed around the specific school context.

Mulqueen, W. E. (2001). Technology in the classroom: Lessons learned through professional development. *Education,* 122(2), 248-256. Retrieved May 15, 2003, from Academic search Premier database.

The author, a Professional Staff Developer on the Teaching for Interdisciplinary Problem Solving program in New York, describes the evolution of a two-year technology professional development program involving high school teachers. The goal of the program was to offer extensive professional development that integrated technology and curriculum training. A variety of strategies, such as workshops with a focus on technology and the curriculum, just-in-time support, and on-site training, were implemented to achieve these goals. However, teachers in the first year of the program still resisted technology integration. Alterations were then implemented which made the program far more teacher rather than product driven. Ultimately, teachers increased their level of comfort with technology integration. This paper emphasizes that teachers need to be the center of any technology development program. That is, teachers' assessments of a program need to be taken seriously, valued, and respected. Creating an effective professional development program can only be accomplished by heeding their suggestions and implementing their recommended changes.

Olina, Z., Dwyer, H., & Savenye, W. (2000). Support and training for high school faculty who will teach using the web. *Annual Proceedings of Selected Research and Development Papers Presented at the National Convention of the Association for Educational Communications and Technology*, 1-2, 28-34. Retrieved May 17, 2003 from the ERIC database. (ERIC Document Reproduction Service No. ED455806)

The recommendations for teacher support made in this article are based upon a six-year study conducted in a U.S. secondary school piloting web-supplemented and web-based instruction. Data for this study were collected through a literature review, case studies, interviews, and questionnaires. The majority of this article focuses on detailed recommendations for teacher professional development and support. Olina et al. divide these recommendations into three areas: setting the stage, training approaches, and support systems for sustaining change. In this article, leaders in educational technology are provided with an extremely helpful checklist of faculty issues to consider when establishing a web-based program of study.

O'Reilly, M. & Brown, J. (2001). Staff development by immersion in interactive learning online. *The Pervasive Web: Proceedings of AusWeb 01 the Seventh Australian World Wide Web Conference,* 259-268. Retrieved May 24, 2003, from http://ausweb.scu.edu.au/aw01/papers/refereed/o_reilly/paper.html

In their article, O'Reilly and Brown describe a new professional development initiative at Southern Cross University in Australia. The proposed new professional development strategy, aimed at raising people's awareness of the value and possibilities of teaching online, places instructors in the shoes of online learners. Staff members visit the *InterActive Learning Online* site to complete tutorials, to access one-month seminars, and to network with colleagues. The site encourages staff to experience online learning firsthand, to discuss exemplary practices, and to explore new ways of communicating and building community online. This article reiterates what other research in the field of online learning suggests; effective professional development of instructors includes allowing them to gain hands-on experience with online technology and pedagogy.

Orrill, C. (2001). Building technology-based, learner-centered classrooms: The evolution of a professional development framework. *Educational Technology Research and Development*, 49(1), 15-34. Retrieved August 29, 2002, from Academic Search Premier database.

The author is a researcher in the Learning and Performance Support Lab at the University of Georgia, and the research was conducted as part of her doctoral dissertation. In this four-month qualitative study, Orrill attempted to create a professional development framework built around supporting teachers in becoming more learner-centered when implementing simulation software. A robust triangulated methodology was utilized to develop a professional development framework that included five essential components: reflection, proximal goals, collegial support groups, one-on-one feedback and support materials. It was found that the core of the framework was teacher reflection. Although designed from an investigation of simulation software, the framework may in fact be beneficial for other technology-related environments. The main benefit of the paper is that it provides a model for professional development that can be used as a guide in the design of other technology professional development activities.

Palloff, R. M. & Pratt, K. (2001). *Lessons from the cyberspace classroom: The realities of online teaching.* San Francisco: Jossey-Bass.

This is the second of Palloff and Pratt's books focussing on online teaching. As distance educators themselves, these authors offer educators and administrators many practical suggestions about how to teach online, select appropriate technology, transfer content to the online environment, teach courses developed by others, and work with distance education students. Special emphasis is placed on creating welcoming, interactive learning online communities that serve a variety of students. Highly readable text, coupled with chapter summaries, URL's, references, tips, diagrams, and real-life examples make this book a useful read for any educator entering or experiencing difficulty in the online environment. The authors' down-to-earth approach and honest assessment of their own mistakes serve to inspire, to comfort, and to teach.

Parr, J. (1999). Extending educational computing: A case of extensive teacher development and support. *Journal of Research on Computing in Education*, 31(3), 280-291. Retrieved August 27, 2002, from Academic Search Premier database.

Parr is a researcher and teacher in the School of Education at the University of Auckland with an interest in integrating technology into teaching and learning. This article chronicles one secondary school's technology professional development efforts over a five-year period and targets researchers or technology leaders wanting some longitudinal information. Data were collected through both quantitative and qualitative techniques to ensure trustworthiness. Perhaps the greatest contribution of this article is that it emphasizes that the program changed and evolved through constant evaluation. However, there were three basic chronological thrusts to the program: increased computer access, a technology integration plan, and increased peer coaching. Findings indicate that only minor incremental gains in the variety and amount of classroom technology use took place. The essential point of the article is that any professional development program, even if it is in-house and collegially based, needs to connect the necessary technical training with pedagogical values.

Rakes, G. C. & Casey, H. B. (2002). An analysis of teacher concerns toward instructional technology. *International Journal of Educational Technology*, 3(1). Retrieved May 25, 2003 from http://www.ao.uiuc.edu/ijet/v3n1/rakes/index.html

Educational leaders concerned about the level of technology integration in their classrooms would benefit from reading Rakes and Casey's well-researched article. The authors, faculty members at the Universities of Tennessee and Louisiana, share data collected from a quantitative study of over six hundred K-12 teachers. These participants answered The Stages of Concern Questionnaire related to technology integration in their classroom. The study revealed that the majority of teachers are most concerned with Stage 2 and 5 concepts: status, reward, potential effects of technology, and coordination with others. The authors conclude that any professional development effort aimed at increasing classroom technology integration must first address teachers' concerns. Time and technical support were both cited as being important in alleviating these concerns.

Sheumaker, F., Slate, J. R., & Onwuegbuzie, A. J. (2001). The role of InTech training in the integration of technology into instructional practices among Georgia middle school teachers. *Journal of Research on Technology in Education,* 33(5), Retrieved May 20, 2003, from http://www.iste.org/jrte/33/5/sheumaker.cfm

This article evaluates the effectiveness of a staff development program (InTech) for Georgia middle school teachers with a focus on constructivist technology integration. Unfortunately, the article lacks any description of the program whatsoever, thereby limiting its usefulness. Without a program description, the paper does not offer enough information to allow readers to implement a similar type of program, which limits the target audience to primarily other researchers. It was found that teachers who had participated in InTech training did have their students utilize technology more often and that they incorporated presentation software to a greater degree than teachers who had not participated in the professional development. The authors claim that this evidence proves the value of the program. However, the data in no way demonstrates that a more constructivist learning environment is being created through the use of technology, which is one of the program's

goals. The main benefit of this paper is that it provides a framework from which other researchers may evaluate the effectiveness of a professional development program.

Strehle, E. L., Whatley, A., Kurz, K. A., & Hausfather, S. J. (2001). Narratives of collaboration: Inquiring into technology integration in teacher education. *Journal of Technology and Teacher Education,* 10(1), 27-47. Retrieved January 22, 2003, from WilsonWeb database.

The authors of this article are teacher educators who came together to examine their own technology professional development needs following an administrative mandate to increase their level of technology use in teaching. It is an excellent example of what can be done by teachers to improve technology integration if they are offered a limited formal professional development program. The paper describes an action research project in which the authors met on a regular basis throughout the term to discuss and synthesize their technology integration experiences. Through the use of narratives and study groups, the authors were able to identify common themes about technology integration and, most importantly, make three conclusions. First, they found that there must exist a match between use of technology and instructional goals. Second, technology integration was complicated and difficult. Third, through the narratives and study groups, they were able to offer support to one another and learn new pedagogical approaches. This article demonstrates how teachers can make positive changes in their teaching with technology through collaboration with peers. It is not a complete framework for school or district-wide professional development, but the strategies employed could constitute one aspect of a more robust professional development program.

Wright, C. R. & Stammer, I. (1996, Spring). Overcoming resistance to educational technology innovation. *College Quarterly.* Retrieved May 24, 2003, from http://www.senecac.on.ca/quarterly/CQ.html/HHH.057.CQSpr96.Wright.html

Wright and Stammer's article, though written in 1996, is still highly applicable to institutions aiming to encourage teachers to integrate technology. Wright, a Media Coordinator at Grant MacEwan Community College, and Stammer, a Distance Education Consultant at the University of Alberta, share practical tips on how to get resistant educators to accept educational technology. These tips include offering incentives and recognition to staff involved in information computer technology projects, providing appropriate training, making technology available, encouraging smaller projects first, providing support, and showcasing staff activities. Although no formal research appears to have been conducted in the writing of this article, the authors' realistic suggestions and their enthusiasm for technology make this article a worthwhile read for any administrator or teacher struggling with individuals refusing to integrate technology in educational practice.